

**CORRECTIVE ACTION DECISION/RECORD OF DECISION
AMENDMENT**

SITE NAME AND LOCATION:

Rocky Flats Environmental Technology Site, Operable Unit 1: 881 Hillside Area, Jefferson County, Colorado

LEAD AND SUPPORT AGENCIES:

Lead:

U.S. Environmental Protection Agency (EPA), Office of Ecosystem Protection and Remediation

Support:

U.S. Department of Energy, Rocky Flats Field Office (DOE-RFFO)
Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division (CDPHE)

INTRODUCTION

The Corrective Action Decision/Record of Decision (CAD/ROD) Declaration for Operable Unit 1 (OU-1), 881 Hillside Area, Rocky Flats Environmental Technology Site (RFETS) (DOE, 1997) was signed on ???????? by representatives of the EPA, DOE-RFFO, and CDPHE. The CAD/ROD presented the selected remedy for addressing contamination in subsurface soil at Individual Hazardous Substance Site (IHSS) 119.1. Since the signing of the CAD/ROD, new sampling and analysis data were collected at IHSS 119.1. The results from this effort substantially supports the need to significantly alter the response action.

Section 117(c) and (d) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) contains provisions for addressing and documenting changes to a remedy that occur after a ROD is signed. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) section 300.435(c)(2)(ii) also addresses post-ROD information and public comment on post-ROD documentation. In accordance with these provisions and guidance provided in *Guidance on Preparing Superfund Decision Documents*, Interim Final, July 1989, a CAD/ROD Amendment has been prepared for Operable Unit 1: 881 Hillside Area. This CAD/ROD Amendment addresses and documents changes to the previous CAD/ROD declaration and presents the information gained since the time that declaration was signed along with the rationale leading to this amendment. This CAD/ROD Amendment is part of the Administrative Record File per NCP section 300.825(a)(2)). The File is available at the following locations:

Rocky Flats Public Reading Room
Front Range Community College
Level B
3645 West 112th Avenue
Westminster, Colorado 80030

CDPHE
Hazardous Materials and Waste Management Division
4300 Cherry Creek Drive South
Denver, Colorado 80222

Colorado Council on Rocky Flats
1536 Cole Boulevard, Suite 150
Denver West Office Park, Building 4

results of a qualitative measurement technique (i.e., headspace analysis using a field instrument) rather than actual soil concentrations. For Remedial Design/Remedial Action (RD/RA) purposes, these "implementation" samples were collected in the areas tentatively identified in the CAD/ROD for excavation at IHSS 119.1 to more accurately delineate the target area for the remedial action.

The analytical results for the RD/RA implementation samples (RMRS, 1997b) show that the actual soil concentrations of the COCs, if detected at all, are well below the RFCA Tier I subsurface soil action levels (DOE, 1996). Based on these results, it can be concluded that COC concentrations in soil within IHSS 119.1 are not above the RFCA Tier I subsurface soil action levels (DOE, 1996) as previously assumed. Thus excavation and treatment of these soils is not warranted. Because this represents a fundamental change to the remedy, a modification to the OU 1 881 Hillside Area CAD/ROD (DOE, 1997) is necessary to a) present the information gained from the downgradient and implementation borehole sampling, and b) document the rationale for changing the remedy presented in the original CAD/ROD.

DESCRIPTION OF ALTERNATIVES

Six candidate remedial alternatives were compiled from the treatment technologies that passed a detailed screening process conducted during the *Corrective Measures Study/Feasibility Study* (CMS/FS) (DOE, 1995). These alternatives were summarized in the CAD/ROD (DOE, 1997) and from those presented, the original remedy, Soil Excavation with Groundwater Pumping, was selected. However, at the time the original remedy was selected, the subsurface soils at IHSS 119.1 were assumed to be contaminated and act as a residual source to groundwater contamination. Based on the results of the RD/RA implementation sampling, the soil excavation component of the remedy should be eliminated. The amended remedy reflects the lack of a subsurface source of contamination at the IHSS and results in a new alternative: Groundwater Pumping. This alternative will be re-evaluated in this CAD/ROD amendment against the original remedy.

Original Remedy: Soil Excavation with Groundwater Pumping

The selected remedy was intended to achieve RAOs through excavation of contaminated subsurface soils and contaminated groundwater beneath IHSS 119.1 as it entered the excavation. Based on *Sampling and Analysis Report-Identification and Delineation of Contaminant Source Area for Excavation Design Purposes*, April 1996, the estimated volume of contaminated soil that was planned for excavation from IHSS 119.1 was one thousand to two thousand cubic yards. The excavated subsurface soils would have been treated on-site with a thermal desorption unit and returned to the excavation.

Contaminated groundwater entering the excavation would have been extracted from the excavation and treated in the Building 891 treatment system. The existing French Drain and Building 891 treatment system would continue to operate during the remedial activities, but after remediation of the presumed source was complete, the French Drain would have been decommissioned and groundwater collection and treatment would have ceased. Groundwater monitoring would have been performed consistent with the Integrated Water Management Plan after completion of the remedial action.

The remediation time frame presented in the CAD/ROD for the original remedy was estimated to be four to six months including decommissioning of the french drain; however, this time frame excluded monitoring.

Amended Remedy: Groundwater Pumping

differentiating the original remedy from the amended remedy (i.e., all other components of the original and amended remedy remain the same), the long-term effectiveness and permanence for the amended remedy is equal.

Reduction of Toxicity, Mobility, or Volume Through Treatment: In the CAD/ROD, the original remedy was ranked highest among the alternatives considered with respect to reduction of mobility because it was assumed that the remedy would remove the primary source of contamination and treat contaminated groundwater. The original remedy was assumed to prevent any further migration of contamination to the groundwater (DOE, 1997). Additionally, the original remedy was ranked highest with respect to the reduction of toxicity and volume through treatment because of the soil excavation and treatment. It has been determined through the CAD/ROD implementation sampling in IHSS 119.1 that subsurface soil contamination sources in IHSS 119.1 do not exist and, as a result, further contamination of groundwater (i.e., contaminant mobility from the a source) is not anticipated. Additionally, without the soil excavation component of the remedy, additional reduction of toxicity and volume will not be realized. Because the soil excavation component is the only factor differentiating the original remedy from the amended remedy (i.e., all other components of the original and amended remedy remain the same), achievement of a reduction of contaminant mobility, toxicity and volume through treatment for the amended remedy is equal.

Short-term Effectiveness: This criterion evaluates community, environmental and site worker protection during implementation of the remedy. It also evaluates the effectiveness and reliability of protective measures during implementation and the time until RAOs are achieved.

With respect to community, environmental, and site worker protection during implementation, the original remedy was ranked similarly to the other alternatives considered because, other than the no action and institutional control alternatives, all included some site disturbance (DOE, 1997). Comparing the original remedy to the amended remedy, the potential for site disturbance is reduced because soil excavation will not occur. Decommissioning of the French Drain is the same for both the original and amended remedy. The short-term impact for the amended remedy is therefore considered higher than the original remedy.

With respect to the effectiveness and reliability of protective measures during implementation and for the time until RAOs are achieved, the original remedy was ranked the highest with respect to the other alternatives. This ranking was assigned because, as stated in the CAD/ROD, excavation was considered to be the most effective and reliable of the technologies considered (DOE, 1997). Comparing the original remedy to the amended remedy, the need for protective measures during implementation is reduced because soil excavation will not occur. Decommissioning of the French Drain is the same for both the original and amended remedy. The rank of the amended remedy is therefore considered higher than the original remedy.

For the original remedy, compliance with RAOs was anticipated to be achieved in four to six months, the time necessary to complete the soil excavation. It has been determined through the CAD/ROD implementation sampling in IHSS 119.1 that subsurface soil contamination sources in IHSS 119.1 do not exist and, as a result, further contamination of groundwater is not anticipated and the RAOs with respect to this portion of the remedy are achieved at present.

Implementability: This criterion evaluates the technical and administrative feasibility of implementing the alternative including the availability of materials and services needed during implementation, as well as the ability to monitor the effectiveness of the remedy.

In the CAD//ROD, the original remedy was ranked medium in comparison to the other alternatives considered with respect to implementability (DOE, 1997). This ranking was applied because excavation was considered effective and the equipment necessary to excavate and treat

2) Institutional controls will be maintained throughout the OU 1 area in a manner consistent with RFCA, Rocky Flats Vision, and the ALF. These documents recognize the reasonably foreseeable future land use for the OU 1 area is restricted open space. The institutional controls will ensure that the restricted open space land use is maintained for the OU 1 area and that domestic use of groundwater is prevented. If the reasonably foreseeable future land use for OU 1 area changes when final sitewide land use decisions are made, this remedy will be reexamined to ensure protectiveness of human health and the environment. The specific mechanisms (for example, deed restrictions) to ensure the implementation and continuity of the necessary institutional controls have not been included in this CAD/ROD amendment. Currently, these mechanisms are envisioned to be placed in the Final Sitewide CAD/ROD or incorporated during one of the five-year reviews of this document. However, should the Final CAD/ROD not occur or not include these institutional control mechanisms, the OU 1 CAD/ROD and/or the CAD/ROD amendment will be revised to include them, if it does not already include them as a result of a five-year review. The institutional controls can also be removed at one of the above times, if it is deemed appropriate to do so by the parties.

3) Because of the groundwater and land use controls, the low amounts of contamination in OU 1 outside of IHSS 119.1, and the low levels of risk associated with the contamination, no remedial action will be taken at the remaining IHSSs in OU 1.

Implementing the amended remedy will not result in any irreversible damages to natural resources. Wetlands will not be injured; flood elevations will not be affected; and no permanent displacement or loss of wildlife will result from the implementation of the amended remedy.

STATUTORY DETERMINATIONS

The amended remedy for OU 1 satisfies the statutory requirements of CERCLA Section 121. The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. The remedy satisfies the statutory preference for remedies that employ treatment that reduces, toxicity, mobility, or volume as a principal element. Because this remedy will result in hazardous substances remaining in groundwater, a review will be conducted within five years after commencement of the remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

Table 1. RCRA Tier 1 Subsurface Soil Action Levels, Results of the Downgradient and IHSS 119.J Investigation.

COC	ACTION LEVEL (MG/KG)	DOWNGRADIENT INVESTIGATION - FOD ¹	DOWNGRADIENT INVESTIGATION RESULTS (MG/KG)	IHSS 119.J BOREHOLE SAMPLING - FOD ¹	IHSS 119.J BOREHOLE SAMPLING RESULTS (MG/KG)
Carbon Tetrachloride	11.0	0/13	0.62 U	0/38	0.62 U
1,1-Dichloroethene	11.9	0/13	0.62 U	2/38	0.17J - 0.23J ²
Tetrachloroethene	11.5	0/13	0.62 U	3/38	0.16J - 0.66 ²
1,1,1-Trichloroethane	378	0/13	0.62 U	2/38	0.16J - 0.28J ²
Trichloroethene	9.27	0/13	0.62 U	2/38	0.34J - 0.55J ²

¹FOD = Frequency of Detection represents the number of detections/number of samples. Number of samples does not include duplicates.

² Range of detected values.

U = COC was not detected at the level indicated.

J = estimated concentration at the level indicated. The concentration represents a value below the detection limit.

RESPONSIVENESS SUMMARY

OVERVIEW

SUMMARY OF COMMENTS RECEIVED DURING PUBLIC COMMENT PERIOD
AND DOE RESPONSES